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work has the appearance of being well done; but its aim is purely systematic, and the point of view is that of a generation ago, when, much more generally than now, the object of the student was to label the specimens in his collection and to arrange them in an orderly manner. C.

Revision of the Melanopli.¹ — This is a monograph of that division of the Acridiidae or short-horned grasshoppers which includes our common red-legged locust, the Rocky Mountain locust, and other well-known forms. The group includes thirty genera (eighteen new) and 207 species, of which 115 are here described for the first time. As the work is done in that thorough manner which is characteristic of Mr. Scudder's monographic work, it is obvious that this is an exceedingly important contribution to our knowledge of the orthopteran fauna of North America. One cannot go over the pages of the book before us without being impressed with the devotion of the worker, as shown by the infinite care and patience with which the descriptions have been made. C.

Handlirsch's Monograph of the Phymatidae; Fernald's Pterophoridae of North America. — Handlirsch's "Monographie der Phymatiden" (*Ann. k. k. nat. Hofmuseums*, 1897, Bd. xii, No. 2, pp. 127-230, taf. 4-9) is a well-planned and well-executed systematic study. The work of previous investigators is stated in sufficient detail, and there are brief notes relating to the morphology, anatomy, development, life-habits, geographic distribution, systematic position, and relationships of the family. The tabular separations of the subfamilies, genera, and species, and the descriptions of the genera and species are clear and concise; three new genera and twenty-eight new species are described. Handlirsch recognizes three subfamilies, the Phymatinae, Macrocephalinae, and Carcinocorinae; of Phymata, the only genus of the Phymatinae, there are twenty-five species, two from Europe and the others from North and South America and the West Indies. Four species are noted from America, north of Mexico, and of *Phymata crosa*, the well-known ambush-bug, many subspecies, ranging from Canada to Chili, are described. Scott's two species from New Zealand are doubtfully placed here. There are six genera and forty-three species of Macrocephalinae; thirty of the latter are

¹ Scudder, S. H. Revision of the Orthopteran group Melanopli (Acridiidae) with special reference to North American forms. *Proc. U. S. Nat. Museum*, vol. xx, pp. 1-421, with Pls. I-XXVI.

placed in Macrocephalus. The species of Macrocephalus have the same distribution as those of Phymata, and, as with Phymata, but four species are found in America, north of Mexico. The habitat of the single species of Oxythyreus is not known; Amblythyreus, six species, Cnizocoris, two species, and Glossopelta, three species, are all from the Indo-Asiatic region; Agrenocoris, with a single new species, is, with doubt, credited to Mexico. The subfamily Carcinocorinæ consists of two genera, Carcinocoris, two species from Indo-Asia, and a single species of Carcinochelis, described as new, from an unknown habitat. The plates and cuts adequately illustrate the text.

A striking contrast to this careful, original monograph of Handlirsch may be found in "The Pterophoridae of North America," by C. H. Fernald (35th Ann. Rept. Mass. Agric. College, January, 1898, pp. 83-163, 9 pls. Separate: January, 1898, 80 pp., 9 pls.).

Professor Fernald devotes less than a page to geographical and geological distribution, economic importance, and natural enemies; the history and structure of the family are stated in less than eight pages, and there are very brief notes on the habits and early stages. The greater part of the work is given over to an account from a systematic standpoint of the six genera and fifty-eight species found in America, north of Mexico; a notice of *Orneodes hexadactyla* is added.

The whole work is essentially compiled; it contains hardly an original line from a biologic point of view; of early stages the descriptions and accounts are, almost without exception, surrounded by quotation marks, and though the author is stated, the reference to the place of publication is frequently omitted. While this paper by Professor Fernald may serve the purpose of calling attention to our plume-moths or feather-wings, it will hardly enhance the reputation of its author. It shows everywhere carelessness in preparation and haste in publication. Important references to descriptive matter, previous notices of food-habits, of early stages, and records of habits are omitted; species treated in the text are left out of the tables; a species appears in the text under one name and in the table under a different name; the bibliographic references are not uniform; Zeller's paper (1873) is cited, on the first pages, "Beit." and later on as "Verh. z.-b. Ges. Wiens."; the number of specimens studied is given in some cases; in others it is not given; direct detailed references from text to plates are not given.

Plate I shows the external morphology of *Pterophorus monodactylus*; of the other plates two are given over to venation, the others to geni-

talia. The genitalia, though thus elaborately illustrated, are hardly referred to in the descriptions. On page 135 *Pterophorus ambrosiæ* is put down as a synonym of *P. inquinatus*, a conclusion that seems more than doubtful when Pl. IV, Figs. 3, 4, and Pl. VI, Figs. 14, 15, are compared.

The index of genera and of species issued with the separately paged reprints might have been omitted, as the references are to the original pagination, not to the pagination of the reprint. January, 1898, on both the report and reprint, should not be considered as the date of publication, as the first advance copies were not sent out from the state printers until March 31, 1898.

Finally the publication in an agricultural report of a systematic account of a family of so slight economic interest as the Pterophoridae may well be criticised, especially when so many species of prime importance to agriculturists await adequate treatment.

S. H.

BOTANY.

The Morphology of Spore-producing Members. — With the improvements in microscopical technique and the increasing availability of tropical types there have been during the last decade great additions to our knowledge of the structure of all groups of plants, and the pteridophytes have not been neglected. As might be expected, these investigations have not always confirmed the older views, and perhaps nowhere is this more marked than among the ferns. Until quite recently it has been generally accepted that the Leptosporangiatæ, especially the Hymenophyllaceæ, were the more primitive ferns from which the Eusporangiates, the Ophioglossaceæ, and Marattiaceæ, have sprung. The result of these recent studies has been to throw much doubt upon this view, and to make it reasonably certain that the latter groups are really the older ones, while the leptosporangiate ferns represent comparatively recent specialized types, which have arisen from eusporangiate ancestors.

No more important contributions to this very interesting subject have been made than the series of studies upon spore-producing members, of which the present paper¹ is the third. Professor Bower

¹ Bower, F. O., Sc.D., F.R.S. Studies in the Morphology of Spore-producing Members, Marattiaceæ. *Phil. Trans. Roy. Soc.*, Ser. B, vol. 189, 1897, pp. 35-81, Pls. 7-11.